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Class Lesson Plan

My topic for my class lesson is about probability. It's important for children to know what probability is and how to find it. In my lesson plan the following TEKS are going to be covered: 3.13) **Probability and statistics.** The student solves problems by collecting, organizing, displaying, and interpreting sets of data. The NCTM for grades 3-5 is going to be the following: collect data using observations, surveys, and experiments. My class lesson plan is going to consist of an introduction of probability, so the students can truly grasp what probability really is and how it's used. It's going to be followed by a wonderful book that I found in the library called Probably Pistachio by Stuart J. Murphy that talks about a boy named Jack and his dealings with using probability throughout his day when everything goes wrong. There will be a small lecture after the book about the proper way of writing probability answers. Finally the lesson will be finished off with a small activity, so they can see for themselves how probability is used and found.

Lecture:

It's important to know what the students know about the subject before you start a new lesson, so I would ask them if anyone has heard of the word probability or knows what it is? Some of the answers I could get could be of examples when they have heard or used the word probability. For instance, "My mom told me we will probably have time today to buy my fish a new fish tank, I'm probably going to visit my grandparent's house in Florida this summer, or some students might answer with their acknowledgement of the word. Using the examples given by the students I would ask them what the examples

thought would happen with Jack and his lunch. Would Emma have a pastrami sandwich that day? I'm sure I would get a yeses and nos from the students. I would then ask them to explain why or why not. Some would say yes because most of the time she has pastrami and the day she doesn't have it is usually on Thursdays. Other would probably say no because there is still that chance that the one day out of the week could be that day. I would read on to find that Emma agreed to trade with Jack only to find out that she didn't have pastrami! Great job to those of you thought she wasn't going to have pastrami! As Jack went to soccer practice, the coach always made them count by twos to play a practice game. Jack and his friend Alex always had somebody in between them so they could be on the same team, but only to find out that the coach decided to count to threes that day. It would be impossible for Alex and Jack to be on the same team now. At the end of practice the coach dumped some bags of pretzels, crackers, and a few popcorn bags. Jack loves popcorn! One by one each pulled into the basket without looking and pulled out a bag. I would stop and ask how many students thought Jack would or wouldn't get a bag of popcorn and why? Jacks day was getting worse especially now that he got a bag of pretzels. As he entered his home the smell of pizza welcomed him inside. He couldn't believe it pizza on a Monday was not very probable usually he had pizza on Saturdays or Sundays. I would ask again the opinion of the students. More student's this time said no because it wasn't Saturday or Sunday. They were right! It wasn't the smell of pizza it was spaghetti and meatballs. Jack had had enough everything was going wrong until his mom came home and said she had a surprise. She had brought ice cream for dessert. "I got your favorite", she said. Who's favorite his or his sister. There's an even chance it could be chocolate, which he doesn't like, or his favorite pistachio. His mom

really mean. "What does your mom mean when she says that we will probably have time today to get a new fish tank?" The student's response could be, "Well, that we might or might not have time to go to buy the fish tank" or "That I might go or might not go to my grandparents house this summer." Both of these answers used the words might or might not, so probability means there is a chance that an event could happen. Probability is another word for chance. What are the chances that Johnny will go to Florida to visit his grandparents? Probability is used in everyday lives? Weathermen use probability when they do our weather forecast. They find out the chances of it raining or being sunny everyday of the week. I used probability during lunchtime this afternoon when I thought about the chances of the cafeteria having my favorite banana pudding. How about those of you who brought your lunch today how many of you guys thought about the chances of your mom or dad packing up your favorite kind of chips in your lunch. As we all can see probability is used all the time. I'm going to read this wonderful book to you guys called Probably Pistachio by Stuart J. Murphy, which is about this young boy named Jack and through out his bad day he thought about all his probabilities or chances of his day getting better. Jack starts out his day by waking up late, tripping over his dog, not being able to find his sneakers, and to make things worse by his dad was going to make his lunch. When his mom makes his lunch he can always count on pastrami, which is his favorite food, but since his dad was making his lunch he got tuna fish instead, which he hates. As he was in school all Jack could think about was his awful lunch until he remembered that a classmate of his, Emma, who always had a pastrami sandwich for lunch all the time except for one day of the week. He was in luck it was Monday and Emma would probably have a pastrami sandwich today. I would ask the class what they

pulled out a chocolate ice cream bag Jack was devastated until his mom pulled out another bag of ice cream that was pistachio Jack's favorite! Finally something good had happened to Jack. After reading the story I would ask the students to think about what Jack could have done to make his day a little bit better. Some student's would respond with "He should of known that if it was Monday then he probably wasn't going to have pizza for dinner, since he only has pizza on Saturday and Sunday. Others could respond with that he should have asked Emma first what she had for lunch before deciding to switch with her. The book is a great way to get the students involved and fully understand how probability is used. It gets the students thinking about probability and how it can be used in our every day life.

Lecture about writing Probability Answers:

When you're finding the probability of something there is a way of writing your answer. The answer is called your outcome. When your finding the probability of an event you always use the numbers zero and one because if you have a probability of zero then that means that the probability of your event happening is not going to happen. If you have a probability of one then you have a chance of the event happening. Jack couldn't have any bags of popcorn in order for him to have a chance of getting one. Now if there was at least one bag of popcorn in the basket then he still could have a chance in getting one. He might not have a good chance but he could still get one. You can also have an equal outcomes when your finding probability. What does equal mean? Students: When you have the same amount. Right that's exactly what it means so if Jack had four bags of pretzels and four bags of popcorn his probability is going to be equal because he has the same amounts of bags of pretzels and popcorn. So when you're writing down

your answer to probability you are always going to use Favorable Event/ divided by total outcomes. This is how you're going to write your answers. Favorable Event is going to be the amount of the item you are trying to get. The bottom number is going to be the total of items you have. Your total includes all the items. So if Jack has a total of 6 bags in the basket with 4 bags of pretzels and 2 bags of popcorn and your trying to find his probability of getting a popcorn bag. You would start by counting the total amount of bags, which is 6 because 4 bags of pretzels + 2 bags of popcorn = 6 bags, so you would right that number on the bottom $2/6$. Since you're trying to find the probability of popcorn bags then the top number is going to be the amount of popcorn bags you have total, which would be 2 since there are only 2 bags of popcorn bags in the basket. So your probability of getting a popcorn bag is $2/6$. Lets try another one. If you have 5 chocolate chip cookies and 4 sugar cookies and you want a chocolate cookie what is your probability of getting one. What do I do first? Students: Count how many total cookies you have. So I have 5 chocolate chip cookies and 4 sugar cookies what is my total of cookies? Students: your total is going to be nine. Why nine? Students: because $5+4=9$. Right, 5 chocolate chip cookies and 4 sugar cookies gives us a total of 9 cookies. So where do I write this number? Students: on the top. Not on the top because our top number is amount that we want to get, so it goes on the bottom because this is our total amount of cookies. So what would be our top number? Remember that our top number is the amount that we are trying to get. Students: five. Why wouldn't it be 4 our top number? Students: because the number four is the amount of sugar cookies. That's right were trying to get a chocolate chip cookie not a sugar cookie. So the probability of getting a chocolate chip cookie is $5/9$.

Activity:

To help us with probability more we are going to a fun little activity. We are going to find the probability of the colors in a bag of skittles. In a bag of skittles you have the colors red, yellow, purple, green, and orange. The following activity will help the students in finding the probability of getting a red, yellow, purple, green, and orange skittle from the bag.

Probability of Skittles

Grade Level: Third/Fourth

Groups: of three

Objectives: The students should be able to:

Count and sort colors of skittles

Find the probability of each color in one bag, two bags, and three bags

Write the outcome the proper way

Analyze and interpret data

Materials:

Snack size of skittles

Paper plates

Pencil

Recording Sheet

Directions: Have the students estimate and record how many skittles there will be in each color. Pass around one snack size bag of skittles to each group of three. Have the students open the bag on to the paper plate and sort the skittles by color. Once sorted have the students put their record sheet in front of them to find the probability of each color in a bag. Start with counting all the skittles. Follow along the record sheet and start finding the probability of getting each color in a skittles bag. That would mean that the students have to count how many of each color they have and put over how many total skittles are in the bag. Pass out a second bag of skittles to every group. Sort them by color just like the first bag, but this time your going to put all the skittles together. Record the probability of each color with the two bags combined. Pass out a third bag to each group and follow the same steps as the second bag. After they have recorded their probability with all three bags. Students should analyze their recordings and write an evaluation about what they found in the probability of getting a particular color as they each bag.

Closure: Come together as a class and talk about the different probabilities each group had. Discuss their written evaluation. What happened to every probability of each color every time you added a bag? Did you have a greater or less probability of getting a particular color of skittles?

Evaluation:

During the activity I would walk around and see how each group is doing. I would make sure they understand how to write the answers properly as well as the directions. As I walk around I can be able to help them understand the concept more and ask them questions like What do you guys think will happen to the probability of each color if once you add another bag of skittles? As they turn in their recording sheets I would be able to tell if the activity was successful by reading their evaluations and looking at their answers in the chart. Every group will have different numbers, but the important thing is to make sure they understood how to write the answer.

Sources:

1. Murphy, Stuart J: Probably Pistachio. Harper Collins Publishers, New York, New York. 2001.
2. www.NCTM.org
3. www.tea.state.tx.us/rules/tac/chapter111/index.html
4. www.col-ed.org